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APICULTURAL NEWS ITEMS.

EDITORIAL AND SELECTED.

How very fair becomes the autumn sod,
With all the glory of the goldenrod.

Let us Sow good services—then sweet remembrances will grow with them.

Mr. James Heddon has taken out a patent on his new hive. It is noted in last week's *Scientific American*.

Mr. J. W. Tefft, of Syracuse, N. Y., desires to say that the item on page 579 brought him many inquiries concerning his hive, but he does not make it for sale.

The Autumnal Bloom is generally abundant, but later than usual. Along the rivers the bloom is very full. If the weather is warm and frosts keep off there will be some more honey gathered by the bees yet this fall.

Mr. Allen Pringle exhibited a "pyramid of honey" at the Lennox, Ont., Exhibition, on Oct. 5 and 6, 1885, and the *Beaver*, a paper published at Napanee, Ont., says that his exhibit was "the finest" in the line "ever made" in that "county." His summer and winter-hives were specially mentioned.

The Fat Stock Show will be held at Chicago, Ills., from Nov. 10 to 19, 1885. All the railroads with Chicago connections will sell excursion tickets to the show at greatly reduced rates. The exhibition will be open to the public day and evening (except Sunday) from 9 a.m. Tuesday, Nov. 10, 1885, until 10 p.m., Thursday, Nov. 19, 1885. Gov. Oglesby and other noted men will be present and make addresses on the opening night.

A Correspondent of the *Bulletin d' Alsace-Lorraine*, tells how he stopped the robbing of a hive by means of a solution of carbolic acid. A colony having been attacked by robber bees, he made a weak solution of the acid, with which he sprinkled the hive and its approaches. The robbers at once withdrew, and fifteen minutes later he sprinkled with the same solution all the other hives, including those occupied by the marauders. He had no further trouble of the kind.

To Educate Consumers of Honey on the difference between the "strained" honey of commerce and pure extracted honey, is now the duty of the bee-keepers. The strained honey of commerce is obtained mostly from South America and the island of Cuba. Extracted honey is the pure nectar taken from the combs by centrifugal force, that the combs, which are of more value than the honey, may be returned to the hives to be again and again filled by the bees.

A New Poultry Guide, entitled "Standard and Commercial Poultry Culture, by Artificial Process," written by Dr. T. B. Spaulding, of Edwardsville, Ills., and published at the office of the *American Poultry Journal*, Chicago, is on our desk. It details the profitable management of a poultry yard, and should be read by all who are interested in poultry culture, and who desire to make that rapidly-developing industry pay.

The Complaint of the San Bernardino fruit grower against the bee-keeper mentioned on page 611, states "that he is the owner of a large quantity of raisin grapes, and that the defendant is the owner of 350 colonies of bees in the same neighborhood. Between Sept. 15 and Dec. 15, 1884, it is alleged, the defendant's bees visited the premises of the plaintiff and ate and damaged the drying raisin grapes to a large amount. Between Aug. 25 and Sept. 8, 1885, the aforesaid bees again visited the plaintiff's property and damaged growing grapes to a considerable extent, wherefore judgment for an amount sufficient to cover the loss is asked." The suit is for $399 in a Justice Court. There is considerable excitement in the neighborhood about it—and there will be a lively fight. The National Bee-Keepers' Union is backing up the apiarist to the extent of its ability. Our readers will be informed of the result when it is ascertained.

Some Persons delight in getting their disputes and quarrels into print, even when there can be no reasonable excuse for doing so. This reminds us of the advice given by the sagacious William, Emperor of Germany, when any member of the royal family complained to him of another one. He invariably advises thus: "Do nothing; say nothing; time will put everything to rights." He has a great aversion to washing dirty linen in public, and never forgives one whose indiscretion causes a scandal.

Men Pass Away; monuments crumble into dust; and what remains of human life is human thought. The printed page is the embodiment of the thoughts of those who will soon think no more—but these printed thoughts will live, and energize those who follow in their footsteps, long after this generation shall have crumbled to dust, and individual bickerings have been forgotten. Let all, therefore, look to the future good when writing of the present.

At the Pennsylvania State Fair, Arthur Todd, T. C. Davidson, Dr. S. W. Morrison, J. F. Turner, and John Pyewell were awarded the prizes in the Apiarian Department, which was in charge of the Philadelphia Bee-Keepers' Association.

Early in the War, says the Boston *Budget*, a number of ladies sojourning at Washington undertook to organize an association called "The Order of the Bee," which bound its members not to purchase any imported goods until peace had been conquered. Mrs. Lincoln, on being asked to join, expressed much interest in the proposed reform, but said that she should like to consult her husband before signing. She invited the committee to accompany her to ask him, and after they had explained the project to Mr. Lincoln, who heard them with his usual patience, he asked: "But how is this to affect the public revenue, ladies? The Government needs just now every dollar that it can rake or scrape, and those very imported goods that you propose to dispense with form a large item of the receipts at the treasury. How do you propose to make up the deficiency which you will create?" This was a poser, and the proposed "Bee" did not "improve the shining hour."

Another Bee-Suit.—The Harrisburg *Telegraph* gives the following account concerning a suit against a bee-keeper there:

An unusal case is being tried in the Cumberland county (Pennsylvania) court this week—that of testing by a jury whether the keeping of a large number of bees in a town or borough is a public nuisance or not. The case is from West Fairview, a small town on the opposite side of the river from Harrisburg. Two citizens had about 130 colonies of bees, and, as the summer was scarce of material such as the bees feed upon, they came in large numbers into the houses, stores, grape-arbors, and wherever there was anything for them to feed upon.

The defense claimed that the rearing and keeping of bees was an industry, and as such could not come under the head of a public nuisance, and that suit could not be brought nor damages recovered for the keeping of honey-bees. The attorneys on both sides presented the opinions of several judges and the law points in the case, after which the court decided the case should be tried, and the testimony was received. But one case seems to be on record in the State, and that was tried before Judge Pearson in Dauphin county years ago, in which the defendant was ajudged guilty, had to pay a fine, and abate the nuisance.

A Correspondent in the London *Journal of Horticulture* gives the following as his opinion of Syrian bees:

The Syrian bees have some good qualities, and but for their spitefulness, and tenderness during cold weather, would prove a good variety. Like the Cyprian crosses the Syrian ones crossed with Carniolan drones have proved themselves good honey gatherers, and, as is usually the case with crosses partaking of the nature of the male, they are therefore very docile. The pure Syrians, I observe, are capital sealers of their honey; they do not, like some varieties, have much loose honey in their hive. These good features palliate their stinging propensities, which I am inclined to think climatic influence will lessen.

While manipulating several hives of pure Syrians lately, I was savagely attacked by them, but having my knife in hand I cut a piece of their honey-comb. Their propensity for honey being so great they at once ceased the attack and flew to the honey, when I was allowed to have my will while they had theirs. I have more to say about these Syrians, but wait till I have more data.

To give away a copy of "Honey as Food and Medicine" to every one who buys a package of honey, will sell almost any quantity of it.

☞ We want one number each of the BEE JOURNAL of August, 1866—February, 1867.

QUERIES

WITH

REPLIES by Prominent Apiarists.

Feeding Back Extracted Honey.

Query, No. 141.—How and when should extracted honey be "fed back" in order to procure comb honey?—Fancy Prairie, Ills.

It should be "fed back" in the spring, so as to aid brood-rearing.—C. C. MILLER.

I have never been able to make it pay, so I have given it up.—G. M. DOOLITTLE.

As soon as or a little before the harvest stops. Keep the bees active.—A. J. COOK.

This is still an unsolved problem. I can say this much, it should be fed rapidly and in warm weather.—W. Z. HUTCHINSON.

Why not get the honey in the section-boxes in the first place?—G. L. TINKER.

I would not advise feeding it back at any time, unless under most favorable circumstances, to finish nearly completed combs of honey. It will hardly pay to produce two crops to get one.—JAMES HEDDON.

I do not think a paying job can be made by so doing, but it should be done early in the season, and during the warm weather. So far as my experience goes, it is rather expensive, and exceedingly difficult.—J. E. POND, JR.

No matter how and when you feed extracted honey to convert it into the shape of comb honey, you will never make it pay. It would be better to work your bees for comb honey at the start, if comb honey is most profitable to you. But if you wish to satisfy yourself that it won't pay, you can get the best results by feeding the extracted honey right at the close of the early honey season.—G. W. DEMAREE.

Winter Bee-Passages.

Query, No. 142.—Is it desirable or requisite to make holes through the combs for bee-passages for winter use? Are passages made by the use of sticks laid on top of the brood-frames sufficient?—M. D.

I would answer "yes" to both questions.—A. J. COOK.

In very large combs it is possible that passages might be desirable, but with combs of ordinary size, a space over their tops is sufficient.—W. Z. HUTCHINSON.

To the first I say no; second, yes.—G. M. DOOLITTLE.

I never make winter passages. Possibly it might be necessary in some cases on account of deep combs or other cause.—C. C. MILLER.

We never make winter passages. We find that in ordinary winters there are enough warm days to allow the bees to change their place. Besides, in cold weather they do not always use those passages, and very often die near them, owing to the impossibility of moving.—DADANT & SON.

There is no need of holes in the combs. Split some corn-stalks of the proper length, flatten the ends and lay three or four pieces across the top-bars of the frames, and over all spread the quilt. This will answer all purposes without mutilating the combs.—G. W. DEMAREE.

No, I do not use a "stick," but a 3-16x⅞ bent thus ⌒. I have used it more or less for ten years. I am not sure that it does any good.—JAMES HEDDON.

With a shallow frame like the standard Langstroth, I do not think it is, unless the combs are attached to the bottom-bars and all openings are closed. Theoretically, passages over the brood-frames are all right, but in practice I find no bees walking over the top-bars in cold weather. I have discarded the use of sticks and all other devices on the frames in winter. I place strips of wood between the top-bars and shut off all upward ventilation.—G. L. TINKER.

I do not like to make holes through the combs, for the reason that it injures them greatly. I have found that a "Hill's device," or its equivalent (say sticks lain across the top of the frames), is amply sufficient for purposes of communication from one frame to another.—J. E. POND, JR.

Prevention of After-Swarming.

Query, No. 143.—Would not a virgin queen, or cell just about to hatch, introduced into a hive immediately after its colony had cast a first swarm, prevent a second-swarm by the young queen tearing down the cells before they were ready to hatch? Would not an advantage be gained by furnishing a queen a week ahead?—H.H.

I doubt if it would be a success.—C. C. MILLER.

It would be advantageous and is advisable to furnish a queen-cell ready to hatch, provided the hive does not already contain hatched queens as is sometimes the case.—DADANT & SON.

1. Probably it would. 2. Most certainly, though the colony is hardly able to do much at once after swarming.—A. J. COOK.

Not as a general rule, unless you destroy the queen-cells at the time you introduce the virgin queen or mature cell. If you neglect to remove all the queen-cells before introducing the virgin queens, you are likely to have the swarms a little in advance of the usual time, which is worse than letting them have their own way. As to your last suggestion or question, I think not. Nature seems to guide the bees safely in this respect.—G. W. DEMAREE.

Sometimes this plan will work and at others it will not, as an experience in having queens and cells destroyed by scores has proven. Besides in this locality there is no advantage in the above, but rather a disadvantage over allowing the cells left in the hive to hatch.—G. M. DOOLITTLE.

In the majority of instances, after-swarming can be prevented in the manner mentioned. Under ordinary management there would, in some instances, be an advantage, but none over the Heddon method.—W. Z. HUTCHINSON.

Generally it will; but if the flow of nectar is good it will as often fail, the bees not allowing the cells to be disturbed. I have had several such queens to lead after-swarms. It is of course an advantage where the plan succeeds.—G. L. TINKER.

In many cases it would. I prefer to prevent after-swarms by the method I have already given in the BEE JOURNAL. The plan you mention is best when you are desirous of changing the blood of your bees. I much prefer the just-hatched queen to the queen-cell.—JAMES HEDDON.

Try and see, is the best way to determine. Bees act so differently at different times and under different circumstances, that no one can tell exactly about what will be done. As a rule we may say yes, but we will find lots of exceptions. Of course it is an advantage to gain a week in furnishing a laying queen, provided the advantage is not lost by swarming again.—J. E. POND, JR.

Increasing the Number of Colonies.

Query, No. 144.—Which is the better plan when working an apiary for extracted honey, to make the increase by natural swarming or by division? If by division, when is the best time to do it in this locality, white clover being our surplus?—C., Cincinnati, O.

By division after the clover harvest is over.—G. M. DOOLITTLE.

By division in any case. We would rear the queen-cells from the very best colonies, and make the divisions from those colonies which would not be expected to furnish any surplus, if sufficiently strong. The best time is a little before the beginning of the clover crop.—DADANT & SON.

It makes little or no difference. The pleasure and convenience of the bee-keeper should decide. I would start nuclei and build up as rapidly as I could in the spring.—A. J. COOK.

I prefer natural swarming. If division is practiced, it would be best to divide the colonies before the honey harvest.—W. Z. HUTCHINSON.

My experience is that dividing is the best plan by which to get increase, whether working for comb or extracted honey.—J. E. POND, JR.

"Which is the best," depends very much upon the style of your hive, method of increase by division, and conveniences for hiving natural swarms. If you get no surplus except from clover, perhaps you had best make the increase after the sur-

plus harvest. If they previously swarm, I should accept their increase so far as they do so.—JAMES HEDDON.

It depends upon the locality somewhat, and a great deal upon the honey seasons. As a general rule I prefer natural swarming. In your locality—which is nearly the same as my own—you must increase your bees (if you want increase) during the white clover honey harvest, and any way you may proceed to get your increase will cost you something in the way of loss of honey, and I have found that swarms made by division lose more time getting ready for work than do the bees when permitted to follow the natural laws of increase. Dividing should be done as early as the strength of the colonies will admit of it in your locality.—G. W. DEMAREE.

Position of the Apiary and Bloom.

Query, No. 145.—What would be the difference, if any, in the quantity of honey gathered from basswood or buckwheat if my apiary is right among the blooms, or 2½ miles from them?—H. S.

Very little if any, according to my experience.—G. M. DOOLITTLE.

I doubt if any one can give a reliable answer without trying the experiment with a considerable number of colonies apparently equal in both locations. He might then guess at the truth.—C. C. MILLER.

I do not know, but I think not very much. Bees fly very rapidly, and the exercise seems to invigorate. The way basswood honey comes in, even when the apiary is quite a distance from the forest, is amazing.—A. J. COOK.

The difference would be very great. We have had apiaries just two miles apart that would yield crops altogether different in quality and quantity, showing that the bees did not pasture on the same grounds. A hive whose bees will all travel 2½ miles for their crop, will soon become depopulated. We are absolutely positive of these facts from personal experience.—DADANT & SON.

No definite answer can be given. I have had bees gather honey at least ten times as fast from basswood as from buckwheat.—W. Z. HUTCHINSON.

Judging from other honey sources, I think an appreciably larger quantity of honey would be gathered in an apiary surrounded by bloom, than in one 2½ miles away from it.—J. E. POND, JR.

I think the colonies of bees near the bloom would gather at least twice as much as those located 2½ miles from a good field.—G. L. TINKER.

I do not think there is sufficient difference to pay you to move your bees to and fro each year, unless you are very favorably situated for such removal.—JAMES HEDDON.

In view of the fact that bees do not know instinctively to go directly to the nectar-bearing flowers in the vicinity of their homes, but must depend upon industrious search for profitable employment, it stands to reason that less time will be lost getting the whole force at work on the flowers if the latter are plentiful near the apiary, than would be the case if the pasture was 2½ miles away. Every young bee that enters upon the degree of "field worker," must learn where the best forage grounds are. These hints throw some light upon the perplexing question why one colony will sometimes beat another so badly, when all things, to the eyes of the apiarist, seem to be equal.—G. W. DEMAREE.

Rearing Queens.

Query, No. 146.—Is it a fact beyond reasonable question that queens reared by natural swarming are superior to those reared from eggs laid in worker cells?—S. H.

No.—C. C. MILLER.

No.—W. Z. HUTCHINSON.

As a rule, yes; still with proper care good queens can be reared by the latter plan.—G. M. DOOLITTLE.

No queens reared by swarming by division are just as good as those reared by natural swarming, provided they are reared in strong, healthy colonies.—DADANT & SON.

By no means; I doubt if it is a fact at all. I cannot see why the mere place of deposition, all other things being as favorable, should make the least difference.—A. J. COOK.

No; if the cells are not completed, some sealed and others just ready to seal up, before a swarm issues, the resulting queens will not be any better than can be reared in a strong nucleus. The conditions being favorable, any very strong colony will rear from just-hatching eggs as fine queens as by natural swarming.—G. L. TINKER.

No, indeed, nor never will it be.—G. W. DEMAREE.

Most certainly not. The whole question is theoretical. A queen reared from the egg in a full colony, well fed, if no honey is being gathered, is equally as valuable, and in many cases more so than the majority of those reared after a natural swarm issues.—J. E. POND, JR.

No; I have proven to my satisfaction that I can produce better queens at will than we get through natural swarming, as a rule. Much poorer ones can be artificially produced, and will be unless the work is done just right. I used to think differently, but we live to learn.—JAMES HEDDON.

☞ The New Jersey and Eastern Bee-Keepers' Association having accepted an invitation to meet with the Mercer County Board of Agriculture, of Trenton, N. J., will hold their semi-annual convention in the Grand Jury Room of the Court House at Trenton, N. J., on Thursday and Friday, Nov. 5 and 6, 1885, at 10 a. m. A full attendance of the members is requested. To all persons interested in our vocation, we extend a cordial welcome. The committee of arrangements have secured hotel accommodations at reduced rates.

WM. B. TREADWELL, *Sec.*

Insect Fertilization of Flowers.

The following article is from the "Text-Book of General Botany," by Dr. W. J. Behrens, of Gottingen, Germany. Translated from the second German edition, for the *Popular Science Monthly*. Revised by Patrick Geddes, F. R. S. E. Edinburg: Young J. Pentland, 1885:

Of insects the Coleoptera, the Lepidoptera, the Diptera, and the Hymenoptera are the orders most concerned in the fertilization of flowers. More rarely, fertilization is effected by one or other species of Hemiptera, Neuroptera, and Orthoptera, but these are not of sufficient importance to demand further attention here. We shall therefore confine our remarks to the orders constituting the former group, and consider the various physical peculiarities by which insects belonging to them are enabled to effect the end in question. Such peculiarities chiefly take the form of special structures (invariably confined to the head), by means of which the insects are enabled to reach and abstract the honey contained in the flower. We shall also have to consider the organs concerned in the transport of the pollen.

The order Lepidoptera comprises many species of great importance in effecting the process of fertilization. Their large wings are well adapted for rapid flight from flower to flower, and their long proboscis enables them to reach the honey even when the nectary lies at the bottom of a very long and narrow corolla-tube.

The position assumed by the butterflies when engaged in abstracting the honey deserves notice. The wings, which during flight flutter to and fro with a rapid motion, are folded together perpendicularly over the body, in which position they are maintained so long as the insect remains poised on the flower. The butterfly is thus enabled more readily to escape detection by its many enemies (e. g. birds) than if, when resting, its brilliant wings were outspread. The under surface of the wings is usually of a much less striking color than the upper, and consequently does not prove so attractive. It even happens in many instances that butterflies only visit such flowers as are of the same color as their own wings, this precaution, of course, rendering detection extremely difficult. Many blue butterflies show a marked preference for blue meadow-flowers, while in the Alps the scarlet lilies and many of the orange-colored *Compositæ* are visited almost exclusively by butterflies of like hue. The moths, while extracting honey, do not assume a position similar to that of the butterflies, but hover over the flowers,

their wings rapidly vibrating meanwhile.

The butterflies are excellent honey-hunters, because, as already said, their proboscis is very highly developed. It arises from the head midway between the eyes, and frequently exceeds the entire body of the insect in length. When not in use, it is kept coiled up like a watch-spring, but can be uncoiled at will, and thrust deep down into the nectary of a flower. The proboscis is hollow, and the honey is sucked up by the extreme tip.

In the butterfly the proboscis is the only part of the mouth that is fully developed. In many insects the mouth is very complicated in structure; but in the butterfly a number of the parts are almost entirely suppressed. The *labial palpi*, however, are usually pretty well marked. They are long and narrow, and are densely covered with hairs. To these hairs the pollen adheres, while the butterfly is engaged in sucking the honey, and by them it is carried to the stigma of the next flower which the insect enters.

The proboscis is usually from three to seven centimetres long, but in many tropical moths it attains a length of over twenty centimetres. It is by the great length of their proboscis that many butterflies are enabled to suck the honey from flowers having very long and narrow corolla-tubes, where it would be quite inaccessible to other insects. We need scarcely say that this feature is a great advantage to the butterfly order, for it means that they have the monopoly of the honey of flowers with a long, tubular corolla. The honeysuckle (*Lonicera Periclymenum*), is a good native example of a flower with a tubular corolla, in which the nectary is so situated as to be beyond the reach of the various bees and butterflies with short proboscides, likely to be attracted by it in the daytime. In this case the honey is entirely reserved for one of the evening moths (*Sphinx ligustri*), which possess a proboscis of almost exactly the same length as the corolla of the flower, *i.e.*, about forty millimetres. Attracted by their fragrance, the insect will hover over a cluster of flowers for a time; finally selecting one, it uncoils its long proboscis, thrusts it deep into the innermost recesses of the corolla, and, at its leisure, sucks the sweets denied to less fortunate members of its kind.

As fertilizers the beetles are not so important as the butterflies and moths. Only a small proportion pay regular visits to flowers, the greater number deriving their food from quite other sources. Many species which do frequent flowers only effect injury, devouring, as they do, some of the most important organs, *e. g.*, the stamens or the ovary. Others, however, and especially those whose small size admits of their creeping into the interior of the flower, frequently promote cross-fertilization, the viscid pollen adhering to the general surface of their body, from which it is brushed off by the stigma of the next flower they enter. Such flower-beetles as *Anthrenus*, *Meligethes*, *Malachius*, and certain smaller sorts, are extremely useful in this way.

In other species certain parts of the body are specially adapted for obtaining food from flowers. Thus, in the crown-beetle (*Cerocoma Schæfferi*), the middle of the antennæ are characterized by very strong and well-defined expansions, and are partly covered with hair. The palpi are very long, and the tongue is provided with two tufts of hair. These form together a large yellow crest on the anterior portion of the head. In midsummer this beetle is occasionally to be met with on the flower of the milfoil and corn marigold. If one of these beetles be caught and examined with a lens, the crest is usually found to be covered with a multitude of little yellow pollen-grains.

Among the long-haired beetles the *Lepturidæ* are specially well adapted for procuring food from flowers. The anterior part of the body (head and thorax) is narrow and elongated, so as to enable the insect to push its way pretty deeply into the interior of the flower. The mouth-parts are well developed, and stand straight forward from the head. The labium is usually hairy, and is thus extremely useful in extracting honey.

Compared with the beetles, Diptera or flies take a very prominent position as promoters of cross-fertilization. One great advantage which they have over the former class is their power of free and rapid motion. While the beetles are almost without exception compelled to adopt a slow mode of locomotion, the movements of the flies are among the most rapid known in the insect world. The number of native species of Diptera is very large; of those which frequent flowers we shall here consider but a few. One of the largest and most rapid flying of the Diptera is the humble-bee fly (*Bombylius major*). In this species the proboscis, which is situated on the anterior portion of the head, is of considerable length, so that the insect can reach the honey even when it is secreted some way down the corolla-tube. The manner in which *Bombylius* hovers over a flower while extracting the honey closely resembles that already described as characteristic of the moths among the Lepidoptera.

The *Empidæ* are easily distinguished by the peculiar formation of the head and proboscis. The latter is not directed forward, but almost perpendicularly downward, and the head itself is round; the whole thus bearing some resemblance to the long-beaked head of a crane. Many of the *Syrphidæ* are also honey-suckers. In structure they resemble the common house-fly more than the Diptera we have just considered. The posterior part of the body is mostly distinguished by a number of bright and dark colored bands and specks. As typical examples we may mention the large *Syrphus*, the allied *Eristalis tenax* and *arbustorum*, and the cone-fly (*Rhingia rostrata*). The latter may easily be recognized by its peculiar proboscis, which is kept coiled up under a small conical projection on the anterior part of its head. The sucking apparatus of the Diptera consists of a suctorial proboscis, resembling in a general way that of the common house-fly. It is tubular, short and thickened at its extremity, so as to form a disk, upon which are furrows and hairs. It is by means of this disk that the honey is taken up. The proboscis of the Diptera being almost always short and blunt, they can only extract honey from such flowers as have an open corolla. Insects of this order, then, need only be sought for on flat flowers, and there indeed they may be seen on any sunny day, rapidly creeping about, and greedily imbibing the nectar. The *Umbelliferæ* are special favorites with them, the nectar being found on the disk in the centre of the flower, which can very easily be reached. The Diptera are never found on flowers with long corolla-tubes. Only such forms as the humble-bee flies, *Syrphidæ*, *Empidæ*, and a few others, have a proboscis large enough to enable them to obtain honey from flowers of slightly tubular form. The proboscis of *Bombylius* is about one centimetre long. It is strong and stiff, cleft at the extremity, and thickly beset with hairs. Certain other structures entering into the formation of the mouth (*e. g.*, the lip, the mandible, and the maxillæ), almost equal it in length. The cone-fly (*Rhingia rostrata*), in common with many other broad-headed flies, possesses the power of coiling up its proboscis, the length of which is about twelve millimetres. That anterior portion of the cone-fly's head is prolonged forward so as to form a sort of beak. When not in use, the proboscis is kept coiled up beneath this prolongation. When required, the extremity of the proboscis is first inclined downward, and the organ is next suddenly shot out to its full length. When fully extended the proboscis projects far beyond the beak-like anterior portion of the head. The extraction of the honey is effected by means of the cleft tip. The cleft extremity is used in sucking.

We have already seen that many flowers are exclusively visited by Lepidoptera, their honey not being within the reach of insects belonging to any other order. Such, for instance, are honeysuckle and privet. Very few flowers, however, are frequented solely by Diptera; for the length of the proboscis, even in those Diptera, in which it is best developed, is attained, if not surpassed, by many of the Hymenoptera (humble-bees, honey-bees, etc.). The latter class, therefore, share with the Diptera the privilege of frequenting certain species of flowers. We shall now pass on to consider them for a little.

Of all insects the Hymenoptera (bees and wasps) are, on account both of their physical structure and their peculiar instincts, the best adapted for the task of extracting and collecting honey from flowers. The species comprised in this order, and more especially the bees, are all characterized by a superior share of intelligence, not only as honey-hunters, but in

many other respects. Their mode of living together in large, well-ordered communities, presided over by a queen, has long been a subject of marvel and of study. Out of the wax, which exudes at the joints of the abdominal segments of their bodies, they construct a "comb," consisting of a number of united cells. The cells, when finished, are filled with honey or "bee-bread," a substance composed of a mixture of honey and pollen. This bee-bread forms the food upon which the young larvæ are reared.

The bees are the greatest promoters of cross-fertilization, not only among the Hymenoptera, but among all insects whatsoever.

Over two hundred species of our native bees (*Apidæ*) are known as frequenting flowers, the most familiar being the common honey-bee. The task of collecting and storing honey is performed exclusively by the neuters (workers). The humble-bees do not fall far short of the honey-bees in the assiduity with which they frequent flowers, and they surpass the latter in size and in length of proboscis. Our most common species are the earth humble-bee (*Bombus terrestris*), the garden humble-bee (*Bombus hortorum*), the moss-bee (*Bombus muscorum*), and the stone-bee (*Bombus lapidarius*). Very similar to the humble-bees in appearance and

Anterior Leg of a Worker Bee.

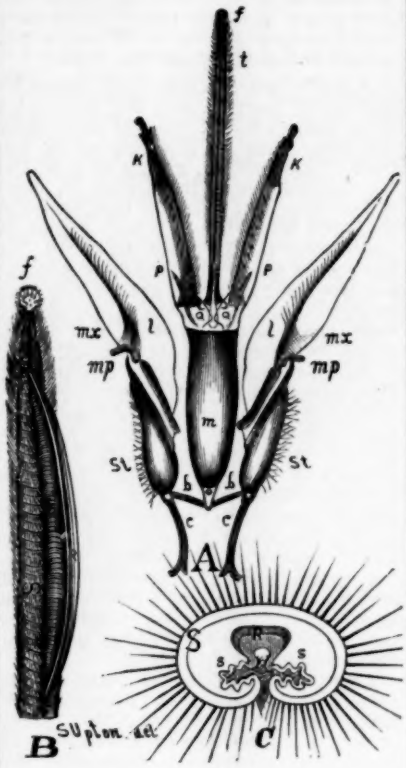
structure are the hairy-bees. They are readily distinguished, however, as we shall presently see, by the formation of the hind-legs. There is also a sand-bee (*Andrena Schrankella*, a species representing one of the largest genera), which may be seen in early spring on catkins and other spring flowers.

We have already said that, over and above their high intelligence, bees are remarkable for having certain points of their body specially modified in connection with the acquiring of honey and pollen. We will now further consider the structures concerned in effecting this end, viz., the *suctorial apparatus* and the *apparatus for collecting pollen*.

The suctorial apparatus is in most bees developed in very great perfection. In many the proboscis is of considerable length, in some cases being as long as the body. It consists of the long vermiform tongue (*f*) (as in the butterflies), the upper surface of which is mostly well provided with oblique rows of long bristles. The maxillæ (*l*) and part of the labial palpi (*k*) are modified into flat, leaf-like, linear processes, which are arranged around the tongue (*f*), and thus complete the suctorial proboscis. While, therefore, the suctorial apparatus of the butterfly consists simply of a coiling or suctorial tongue, it must be noted that in the bee other parts are concerned in the formation of the tubular sucking apparatus. In many bees, besides, the tip of the tongue is peculiarly modified, so as to enable the insect to taste the honey before beginning to collect it, an arrangement by which honey of unpleasant taste can be rejected.

APPARATUS FOR COLLECTING POLLEN.

Of all insects the bees alone have certain parts of their body specialized for the collection of pollen. The structures developed for this end are in their way perfect. They may be found either on the ventral surface of the posterior portion of the body or on the legs. Accordingly, bees may thus be divided into two groups: 1. Bees having structures for the collection of pollen on the ventral surface



Tongue of the Honey-Bee.

of the body; and, 2. Bees having such structures on their legs. To the first group belong the mason-bees (*Osmia*) and the leaf-cutter bees (*Megachile*). In these species the ventral surface of the abdomen is furnished with long, stiff, retroverted hairs, by means of which the pollen is brushed from the anthers as the insect passes in or out of the flower. The grains get entangled among the hairs, from among which the bee afterward dislodges them by means of its legs.

This contrivance is admirably adapted for obtaining pollen from flowers having a flat corolla, but not for such as have the anthers concealed in a deep tube. Our most highly developed bees (humble-bees, honey-bees, etc.) have, therefore, an apparatus suitable for collecting pollen from flowers of all shapes.

The pollen, once removed from the antlers, is next transferred to the hairs, or to the surface of the tibia, to which, being viscid, it readily adheres. After the process of collecting has been carried on for some time, the pollen forms thick yellow masses, which completely envelop the legs. Laden with the fruits of its toil, the insect wings its way homeward, and deposits them in the bee-hive.

While our native flowers are many of them entirely dependent on insects for the transference of pollen, the process of cross-fertilization is, in many tropical species, always effected by birds, which visit the flowers on account of their nectar.

In America the humming-birds and in Africa the honey-eaters are the great promoters of cross fertilization.

The honey-birds are found in the tropical regions of Africa, Asia, and Australia, while the humming-birds belong to tropical and South America. The former suck the honey with their long, tubular tongue, which is brush-like at the tip. Their relations to flowers have not yet been sufficiently investigated, but a good deal is known respecting those of humming-birds.

The humming-birds are small (the largest species attaining to about the size of a swallow, the smallest not much larger than a humble-bee) and of delicate structure. They are famed for their magnificent plumage, which almost always displays metallic tints. Their flight does not resemble that of our native birds, being maintained by rapid vibrations of the wings, which enable them to remain apparently motionless in one spot for a considerable time. Their passage from place to place is effected by a series of rapid darts, almost too swift for the eye to follow. Their flight might perhaps be best compared to that of a moth. Like these insects, the humming-birds hover long over a flower, sipping the honey with their long, thin bill, and in other particulars also—in color and form, for example—humming-birds and moths offer some remarkable parallels. Representatives of each may be found, to distinguish between which needs a close scrutiny, and which, when on the wing, might perplex the best observer. To all outward appearance the humming-birds are birds when at rest, but insects when in motion.

We thus see that in the tropics there are not only wind and insect fertilized flowers, as with us, but also certain which are bird-fertilized, *i. e.*, plants in which the transference of the pollen is effected by humming-birds.

Convention Notices.

☞ The Central Michigan Bee-Keepers' Association will meet in the Pioneers' Rooms in the State Capitol, at Lansing, Mich., at 9 a. m., on Nov. 12, 1885. All who have bees or are interested in bee-culture, are invited to attend. E. N. WOOD, *Sec.*

The Central Illinois Convention will be held at Jacksonville, Ills., on Wednesday and Thursday, Oct. 28 and 29, 1885.
CHAS. DADANT.

Explanatory.—The figures BEFORE the names indicate the number of years that the person has kept bees. Those AFTER, show the number of colonies the writer had in the previous spring and fall, or fall and spring, as the time of the year may require.

This mark ⊙ indicates that the apiarist is located near the centre of the State named: ♂ north of the centre; ♀ south; O→ east; ←O west; and this ♂ northeast; ♂O northwest; O♀ southeast; and ♀ southwest of the centre of the State mentioned.

For the American Bee Journal.

The Statistics of the Honey Crop.

17—G. M. DOOLITTLE, (40—95).

How slow we as bee-keepers are to work by united action to secure what would be of benefit to us all. On page 649 of the BEE JOURNAL for 1884, I gave a plan by which I thought we might in September, 1885, know the relative amount of the crop of honey for this year in the United States, and requested that if the plan I gave was not thought advisable, some other plan might be originated which would meet the approbation of all; for all realize the importance of such a report, as has been shown by the many efforts in that direction. But however much I had hoped and desired, aside from the sanction of the plan by the Editor, I have not seen a word farther in regard to the matter. To be sure we have gained some valuable ground, in that we now know in what part of the State each correspondent of the BEE JOURNAL lives; but as far as any definite knowledge regarding the crop of honey in the United States is concerned, we are no better off than we were a year ago.

When the Bee-Keepers' Union was proposed, I hoped by this plan to get all the bee-keepers united, and after throwing our united influence to our advantage in the Freeborn suit, we might then through this same Union get at the desired statistics regarding the honey crop. But alas! out of the 500,000 bee-keepers of America, only about 250 have seen fit to enroll themselves as favoring a plan of united action to defend our beloved pursuit from disgrace. No wonder Mr. Heddon thought my idea of getting anything out of the Union but defense, was out of order. When I spoke of using the Union for other purposes, I did it upon the basis 500,000 members, and not on less than 300! Shame on you fellow bee-keepers! Arouse from your lethargy and let us up and to work! Join the Union to show that you are one of us, if for nothing more, and then in the near future we will show how this Union can be made of great value to each one. What would you have given on Sept. 1 to have known the amount of honey in America, so you could have disposed of your crop intelligently? I would have given $25, at least, for that knowledge alone, and much more to have known that every bee-keeper in the land was one of the Union, so he would not get crazy over his crop of honey, and rush it into market prematurely to the injury of the whole fraternity.

To show that I have grounds for the above, I wish to give two illustrations: In a neighboring city honey held steadily at 16 cents per pound for No. 1 comb honey, till within the past two weeks when quite a large producer, who admitted that he had not read the bee-papers during the summer, became scared over what he supposed to be an immense amount of honey in the country (judging from his own good yield), and rushed his whole crop in at 12½ cents per pound. The result is that the market is flat, and some grocers assert that they will yet buy honey at 10 cents per pound before the year 1885 is past.

Another producer having honey by the 10,000 pounds, sold the whole lot to a merchant in one of our large Eastern cities at a price below the cost of production, giving as a reason for doing so, that there was an enormous crop of honey in the country, and this with these words found on page 579 of the BEE JOURNAL: "The harvest is past; the summer ended; but the bee-keepers generally say that it was the poorest season for honey that they have known for many years," waiting for him to read.

Again, reports from Boston say that on account of the large crop in Vermont, which is being forced upon the market, honey is likely to become a drug there, and this with Western cities and villages writing East for honey. Now had some plan been united upon as I expressed a year ago, by which all could know the state of affairs really existing, this injury to the fraternity would have been warded off and honey kept at a uniform price throughout the country, thus enriching the bee-keeper instead of bringing discouragement upon him.

As I proposed in that article found on page 649 of the BEE JOURNAL for 1884, to report for Central New York in 1885, I will now do so to show how easily the plan there given works. At a cost of a few cents for postal cards, and a few hours time in writing, I mailed a card to several bee-keepers in each of the the counties embracing Central New York, telling them of the yield in this county, and requesting that they impart the same information in return. To these about two-thirds replied, the other one-third not having time, or perhaps thinking they had gained so much knowledge free, did not answer. This part of it matters not, however, as enough did reply to show that the average yield of comb honey in the ten central counties reporting, is 66 pounds per colony, spring count; the lowest county reporting an average yield of 30 pounds, and the highest 100 pounds.

Now, if we call, as I did last year, 50 pounds per colony as the average yield, it will be seen that Central New York has 16 pounds per colony over or about one-third above the average yield. The rest of the State I cannot vouch for, but I am of the opinion that the bees in the southern part of the State have not done as well, so that probably about 60 pounds would be about the average yield per colony throughout the State. Vermont has a still larger crop, while reports from the northern part of Ohio and a part of Michigan, speak of a good yield. The rest of the United States generally report a light crop, with almost a total failure in California. So it will be seen that if the above is correct (I cannot vouch for any of it except Central New York, the rest being gotten from correspondents here and there), there is no need of bee-keepers becoming alarmed and rushing honey upon the market at ruinous prices.

Now bee-keepers, I again call upon you to take hold of this matter of vital interest to all of us, and see if we cannot, before another year rolls around, have a reliable report from every State in the Union, in time to be of use to us in marketing our honey-product.

Borodino, ⊙ N. Y.

For the American Bee Journal.

North American B. K. Society.

H. D. CUTTING.

Mr. W. Z. Hutchinson and myself met in Detroit on Oct. 16 and 17 to complete arrangements for the next meeting of the North American Bee-Keepers' Society. We succeeded in securing greatly reduced rates at the Antisdell House, one of the first-class hotels, located on Michigan Avenue, and about 20 rods from the City Hall, in the very heart of the city. The regular rates are $2 per day, but in anticipation of a very large attendance they will receive all attending the convention at $1.25 per day. The Antisdell Bros. have the reputation of keeping some of the very best hotels in the West, and I can assure all who will attend the convention that they will be well received and taken care of.

With the assistance of Mr. E. B. Rose, of Detroit, we secured the use of what is known as "Red Men's Wigwam"—a good Hall directly opposite the Antisdell House. The Hall is new, well furnished, carpeted, etc., and should it be stormy weather it will be quite an acquisition to the success of our meeting to have a Hall so near the hotel.

We called on Mr. Geo. E. King, the Secretary of the Michigan Passenger Railroad Association, who received us very cordially, and extended to us every courtesy. He will give us reduced rates on all railroads in Michigan, on all tickets sold from Chicago, Ills., and Buffalo, N. Y.; and from correspondence already begun, we are in hopes to secure the same rates from New York City and other points in the East, and also from the Far West. Due notice will be given in all the bee-publications as soon as final

arrangements are perfected, and if persons wishing to attend the convention at Detroit on Dec. 8, 9 and 10, will write to Mr. W. Z. Hutchinson, Rogersville, Mich., they will receive by return mail a certificate to be filled out by the railroad agent where they procure their ticket; and on their return home this certificate will entitle them to a ticket by paying one-third the regular fare.

Now that all arrangements are so nearly completed, let every one prepare to come to Detroit, on Dec. 8, 9, and 10, and make this meeting one grand success ever to be remembered by every apiarist in the United States and Canada.

Clinton, ♀ Mich.

Selected.

Ancient Opinions on Beeswax.

FRANCIS HUBER, 1793.

Since the time of Reaumur and De Geer, whose works have inspired a general taste for entomology, great advances have been made in this science; all its branches are extended, and the history of bees, in particular, has been enriched. Schirach and Riem have opened a new path; and, perhaps, we have ourselves contributed to clear it of the prejudices which clogged its progress, by establishing the facts announced, in a more rigorous manner.

Some observations, also, have been published in other countries, but so inaccurately that they would sink into oblivion did we not endeavor to support them by facts.

Naturalists have principally directed their attention to wax, and chemists likewise have attempted an analysis of it. But the result of their labors presents so little coincidence, as to prove the insufficient discussion of the subject and that it requires new examination.

When M. Bonnet wrote, it was the general opinion that the pollen, farina or dust of the stamina of flowers, was converted into wax; and it is interesting to peruse his details of its collection, the manner in which the bees load themselves, and how they store it up for preservation. All these facts, and the utility of the farina, had been scrupulously observed by Reaumur, Maraldi, and other learned men; but is this substance truly the elementary principle of wax?

A Lusation cultivator, whose name has not reached us, observes, that although it had been previously supposed that wax is discharged from the mouth, it actually comes from the rings of the abdomen; and that this is evident by withdrawing a bee from the cell where it works in wax, when the wax in the form of scales appears by the extension of the body. In the year 1793, I was greatly astonished at finding scales of a substance analogous to it under the rings. They exhibited its real characteristics on being applied to the flame of a taper, and I showed them to some of my friends.

Workers alone have the property of secreting wax; scales of it, ranged in pairs, are contained in minute receptacles under the lower segments of the abdomen, and situated to the right and left of the angular projection. The conformation of the same part of queens and males is very different, below the rings of which no scales exist.

Nothing but what is common to the abdomen of wasps and many other hymenoptera appears externally in that of the bee, being half segments partially covering each other. But they are not flat below as in most analogous insects, for the abdomen of the bee is traversed by an angular prominence. By gently drawing out the abdomen, the concealed parts are disclosed.

What should be considered the base of each ring, because it adheres to the body of the insect, occupies at least two-thirds of the segment, and is of a yellowish white, soft, transparent, membraneous substance. It is divided into two by a small horny prominence corresponding exactly with the horny projection of the abdomen, and forms two areas bounded by a solid edge on the surface of the membrane. The scales of wax are deposited in these areas, and assume the same conformation; being of an irregular pentagonal figure. Only eight scales belong to each individual bee, for the first and last ring, constituted differently from the others, afford none. Their size decreases with the diameter of the rings whereon they are molded; the largest are under the third, and the smallest under the fifth. All are not alike in every bee, for a difference is perceptible in consistence, shape and thickness; some are so thin and transparent as to require a magnifier to be recognized; or I have been able to discover nothing but speculæ similar to those of water freezing.

Neither the speculæ nor scales rest immediately on the membrane; a slight liquid medium is interposed, serving to lubricate the junctures of the rings, or to render the extraction of the scales easier, as otherwise they might adhere too firmly to the sides of the receptacles. Finally, I have seen the scales so large as to project beyond the rings, being visible without stretching the segments, and of a whitish yellow from greater thickness lessening their transparency.

These shades of difference in the scales of various bees, their enlarged dimensions, the fluid interposed beneath them, the correspondence between the scale and the size and form of the receptacles, seem to infer the transudation of its substance through the membranes whereon it is moulded.

I was confirmed in this opinion by the escape of a transparent fluid, on piercing the membrane, whose internal surface seemed to be applied to the soft part of the belly. It coagulated in cooling, when it resembled wax, and again liquified on exposure to heat. The scales themselves also melted and coagulated like wax.

In prosecuting my experiments further on the analogy of the two substances, I found the following: 1. That scales, thrown into spirits of turpentine, dissolved and disappeared before reaching the bottom of the vessel, without rendering the fluid turbid. But an equal quantity of the spirit could neither dissolve some of the whitest fragments of worked wax taken from new combs so quickly nor so entirely. Many particles remained suspended among it.

2. Taking two vessels of sulphuric ether, I appropriated one for scales from the rings of bees, the other for wax from their combs, equivalent in weight to the scales. Scarcely had fragments of wax touched the ether, when they divided, and were precipitated in powder to the bottom of the vessel; but the scales were preserved entire, and only lost their transparency, becoming a dull white. No change ensued in either vessel during several days. On evaporating the ether from each, a thin stratum of wax was found on the glass. Frequent repetition of this experiment presented the same result; fragments of the combs always were reduced to powder; the scales, on the contrary, were not broken down; and after the lapse of several months, only a very small portion of them had been dissolved by the ether.

I thence concluded that the wax of the rings was less compound than that made into cells, since the latter dissolved in ether, while the former remained entire, and as the one dissolved but partially in the spirits of turpentine, whereas the other was held in complete solution.

If this substance lying under the rings be truly the elements of wax, it undergoes some preparation in leaving its receptacles, and the bees are capable of impregnating it with matter, imparting the whiteness and ductility of real wax. Hitherto we are acquainted only with its fusibility, but such being the chief property of the wax of the combs, we cannot doubt that the scales enter their composition.

For the American Bee Journal.

Des Moines County Convention.

The Des Moines County Bee-Keepers' Association held its fall meeting in the Grand Jury Room in the Court House at Burlington, Iowa, on Aug. 25, 1885, which was called to order by the President at 10 a.m. The attendance was small on account of the busy time and the bad weather, but nevertheless we had quite a good meeting. The convention decided to make as good a display at the County Fair as the poor season would admit of.

Nine members reported 124 colonies, spring count, 217 fall count, and 591 pounds of honey as the amount obtained previous to Aug. 25. This was considered a poor showing of honey from so many colonies. Various plans of feeding, "doubling up," etc., were discussed so as to be able to save part of our bees at least; but heart's-ease and Spanish-needle has come to our aid since then and yielded honey suf-

ficient to enable us to save our bees, as they are now in fair condition as regards stores. Bees have been working on the asters for about four weeks, when warm enough to fly.

The display of bees, honey and bee-keeping implements at the Fair was very good, and attracted a great deal of attention. The premiums were quite liberal. Mr. Geo. Bischoff received $29 in premiums, besides several diplomas, on his several exhibits. John Nau secured $19 in premiums, besides diplomas, and Mr. W. H. Smith obtained $11.

JNO. NAU, *Sec.*

Country Gentleman.

The Maryland Sensitive-Plant.

G. W. D.

My bees are particularly fond of working upon this plant (the *Cassia chamœcrista*), whose efflorescence begins early in August and extends to Sept. 20, and here it is their chief dependence during the second honey harvest. Sandy fields are densely covered with it at this season. But, strange to say, the bees do not collect the honey from the showy yellow flowers, but from glands or rather cup shaped nectaries, one upon each petiole (leaf-stalk). These nectariferous glands are open (concave on top), cup-shaped, sub-pedicelled (having a short stem, though hardly noticeable), very minute, and contain a clear honey easily seen shining in all the matured crops. This was the first case of nectaries occurring upon petioles instead of in the corollas (as we find in nearly all flowers), that came under my observation ten years ago, though others have glands upon their stem leaves (Passion flower), but not honey-secreting ones, and several again have them upon the margin, and even in the cellular tissue, of their leaves (aromatic glands of lemon, geranium, and others). The bees are so ravenous after this honey that I have actually seen them run over each other in their eagerness to reach these nectaries first.

Their pretty papilionaceous flowers are rarely touched by insects. I never saw a honey-bee upon them, though I once detected a carpenter-bee, seemingly at work; since they are destitute of a nectary and their pollen, dry and scant, showing that the sense of smell in insects is superior to that of sight, or else they have a discriminating power of which we know nothing. They work upon them until past mid-day—much longer than upon buckwheat, which would indicate that the honey does not evaporate so quickly. I find that bees do most of their honey-collecting during the first half of the day, a perceptible lull always after 12 m., with a slight increase after 3 p. m., which would show that the more direct rays of the sun dissipate it, or else the bees gather it all. The one great exception is the pulse family (*Leguminosæ*), and their peculiarly shaded nectaries prevents this. I have known bees to work upon black locust (*Robinia rudocassia*) long after sundown, and until quite dark. Cloudy days lengthen the gathering time of all open corollas or rather unshaded nectaries. The secretion of nectar—which can hardly be called honey until evaporated, for it is a bland, watery liquid and thereby thickened into honey by the bees—probably goes on chiefly at night in all fresh corollas, and as these fade, the secretion decreases, and ceases altogether at a certain period, being only indirectly essential, through the aid of insects, fructification or rather conception.

These plants grow luxuriantly upon sandy land in Northern Maryland, and even the poorest sandy soil will produce a dense mat of them from one to three feet high. Belonging to the pulse family, they will grow upon the above soil like the cow and black-eye pea, having a long top-root like clover, and are probably quite as enriching as either of the above peas; therefore they are excellent to turn under as an improver of the soil, though better if left to shade the soil. Quails, called here "partridges," are very fond of the seeds which are enclosed in legumes, resembling those of the black locust, hence called partridge-pea. During cloudy weather and at night, or when broken or pulled up they fold their leaves like the true sensitive-plant which they resemble very much. Cows eat them when green or in full bloom, though sparingly.

Annapolis, ⊙ Md.

For the American Bee Journal.

Manitoba Convention.

At an enthusiastic meeting of beemen that took place in Winnipeg, on Wednesday evening, Oct. 7, 1885, an organization was formed called the "Manitoba Bee-keepers' Association," with Chief Justice Wallbridge President; Thomas Collins, of Portage la Prairie, Vice-President; and J. Hammond, of Winnipeg, Secretary.

In the course of the evening the President gave a most interesting discourse, describing his method of cellar-wintering, by which he had never lost a single colony of bees. The main features of the system consist in giving ample ventilation from below and plenty of porous material above to absorb the perspiration, which otherwise would condense and fall back on the top of the bees, causing thereby all the evils which so often end in the destruction of the inhabitants of the hive.

It was reported that Mr. D. D. Campbell, of Manitou, whose beautiful exhibit of comb honey attracted so much attention at the exhibition, had brought his bees through the past severe winter in splendid condition by adopting similar measures as those described by Chief Justice Wallbridge.

It was resolved that all communications in connection with the Association should be addressed to the Secretary, at 859 Main Street, Winnipeg.

J. HAMMOND, *Sec.*

Prairie Farmer.

Shiny Bees—Autumn Management.

MRS. L. HARRISON.

An unnamed disease has decimated some apiaries this season. Bright Italian colonies have been carrying out black, shiny bees with pointed bodies, during the entire season. This malady has appeared twice in my apiary, and I failed to discover the cause. There was abundant brood, and the affected colonies, so far as I could see, differed in no respect from the healthy ones. If one of the shining blacks got away from its captors, and re-entered the hive, it was immediately marched out again. These shiny bees would come out on the alighting-board, apparently in distress, with their wings extended, and a tremulous motion to their bodies. A change of queens might remedy the difficulty, whatever it is.

We had a very hard frost on Tuesday night (Oct. 5); ice was seen in some places. This closes the honey season. I have removed what little surplus honey there was, and find all colonies supplied with winter stores. The bees are remarkably good-natured for this time of the year, and the colonies are usually populous. If the weather should come off warm, they will forage around, but it is not to be expected that much honey will be gathered.

I shall examine each colony carefully, to ascertain its exact condition for wintering. Where I find one with its honey scattered through the hive, I shall confine the inmates to the combs best filled, letting them carry home the honey from the others. Combs containing little honey I shall put in the cap, leaving a small opening for the bees to come up. If they do not work upon the combs at once, I will uncap some of them. The smell of honey is more apt to start robbing than is that of syrup, and I shall use caution against it by throwing an old quilt or something similar over the hive. As fast as the combs are clean and dry, I shall store them away for use another season.

Peoria, ⊙ Ills.

For the American Bee Journal.

Experimenting in Wintering Bees.

MAHALA B. CHADDOCK.

In his answer to Query, No. 128, on page 629, Mr. J. E. Pond, Jr., says: "It hardly pays to experiment in wintering, that is, to do so by leaving the old beaten track that has been traveled with comparative safety for many years." Just so; but which beaten track shall we follow? Mr. Heddon now has a sure way to winter bees; shall we do it in that way? Or had we better try Mr. Doolittle's plan? Or whose shall we try?

Near Lewistown, Ills., lives Mr. Rufus Porter, a successful bee-keeper, and a successful winterer of bees. He contracts no brood-nests, feeds no syrup, winters his bees on the sum-

mer stands, and has no chaff hives. He takes off the honey-department, and lays on top of the brood-nest a little frame to keep the cloth from fitting tight to the frames. He then makes a box just the size of the honey-department, without top or bottom, nails the coarsest kind of coffee-sacking on it at the bottom, fills it about 3 inches deep with wheat chaff thrown loosely in (not packed down at all), puts on the cover that belongs to the (Langstroth) hive, and lets them alone until spring.

His hives face to the south, and he very rarely clears the snow from the entrances (which he contracts to ⅜x3 inches)—never, unless there is a sudden thaw, and the snow prevents the bees from flying out.

Now, if I used Langstroth hives I should do just as Mr. Porter does. But mine are Gallup and Simplicity hives, and there is no such cover to either of them. I am going to experiment a little the coming winter; not because it will prove anything if I do succeed, but just because I thought of it myself.

Vermont ∘o Ills.

For the American Bee Journal.

Controlling the Honey-Bee.

M. PETER.

Has the honey-bee the right to gather honey or other food wherever it can? It has; for the Creator so designed it, and man has no right to limit it in its course. For, if he had the right, he would have the power so to do. We have no power to teach it where to go or where not to go. The natural limit for the bee is as far as it can go, which is a circuit of nearly six miles or more in diameter. Every open space in this circuit is its domain. If we open our doors, it has the right, like the sunshine, to go in.

If the owner possessed that amount of land, his bees need not gather from his neighbor's fields; but only a few can own that amount. The earth is not for the rich alone, but for all who live upon it. A law that required us to be rich enough to own that amount before we kept bees, is unjust.

If the owner of bees owned less than about six square miles of land, he would have to fence his land, if the law required us to restrain bees from going on the lands of a neighbor. A fence to restrain bees would nearly reach to the clouds, hence unreasonable.

To illustrate a bee's instinct: When 14 days old it can go alone to the fields in search of food, fertilize seed, gather honey or pollen, return to its home and store its treasure, as far as we know, as perfectly the first time as at any other.

We have no skill to teach the blood how to circulate in the veins. We may, by force, hinder its free circulation. Our power or force to hinder does not make it right to do so; for science tells us that when we hinder the natural course of the blood, we hasten our bodies into the grave. We know this, or those who inquire may know it. We may not know the full design of the bee, and it is best not to look into the dark.

Trumbull Co., ♂ O.

For the American Bee Journal.

"Sunny Florida"—The "Union."

7—HARRY G. BURNET, (5—25).

While our fellow-bee-keepers at the North are packing their bees for winter, feeding sugar syrup, and otherwise trying to avoid winter losses, we, at the extreme South, are about entering the season of harvest, which continues without interruption from November until June. For my part, after trying it three years in Iowa, and part of a season with Mr. Heddon in Michigan, I gave up trying the "winter problem," and hied myself off to "Sunny Florida," where such things are unknown; and here, under the palms and moss-hung live-oaks I have started an orange grove and apiary, in a small way, it is true; but it will "grow up with the country," I hope. I find it much pleasanter to spend the winter in extracting honey, hiving swarms, making garden, eating oranges, fresh strawberries and vegetables, than to "shiver out" a winter in Iowa.

I would like to make a suggestion to the readers of the BEE JOURNAL, as follows: Since the publishers have seen fit to reduce the price of the BEE JOURNAL to one dollar, let us, in renewing our subscriptions, send in two dollars as of old, with an added quarter, and thus have all subscribers to the BEE JOURNAL members of the Union. That is what I am going to do, and am trying to get up a club of subscribers on the same plan. The Union is to be of use only by receiving the *united* support of bee-keepers of the United States. In these hard times the above plan, I think, will make it *seem* easier to join the Union.

Alva, ♀ Fla., Sept. 30, 1885.

[This is a good idea, and we hope it will be acted upon by all. The "Union" ought to be a well-supported and efficient organization for the defense of our chosen pursuit.—ED.]

For the American Bee Journal.

Progressive Convention.

The Progressive Bee-Keepers' Association met in the G. A. R. Hall at Macomb, Ills., on Oct. 15, 1885, at 2 p.m., the President, A. W. Fisk, of Bushnell, occupying the chair. After hearing the minutes of the last meeting, the audience was entertained by a song entitled, "Come where the Lilies Bloom," which was sung by the choir, consisting of Mr. J. S. Gash, Mr. Keach, Miss Cora Tullis, Miss Anna Stewart, and Mrs. Geo. Kerman.

An address on apiculture by Rev. E. L. Briggs, was then delivered. He said: "We cannot expect everybody to believe as we do; however, two things must go together to make a success in business—'muscle and brain.'" He gave a full description of bee-keeping in all its branches, and for all seasons of the year. He said: "Bee-keeping is no small business, but of great dimensions, and covers a great field of labor. We cannot expect to make a living by keeping only one colony of bees, neither can we do so in keeping only one cow or one hog; but any man or woman with a quarter of an acre of ground, well stocked with bees, can compete with a farmer having 160 acres of land. A beginner should first buy a good book on the subject, and keep only pure Italian bees. Also, take a good bee-paper, and take extra care of the bees in winter, either keeping them in a cellar kept at a temperature of 50°, or packing them in chaff on the summer stands. If kept in a cellar, give them an out-door flight as early in the spring as possible, then return them to the cellar again till warm weather has come to stay." He closed by saying, "When you get all the bees you need, then stop and work for honey only, for it does not pay to produce bees for sale."

Miss Tullis then sang a solo entitled, "Spring Flowers."

After the song, Mr. C. P. Dadant gave the following in answer to questions: A 10 frame Langstroth hive is small enough, and he prefers a larger one. A hive should contain 66,000 cells for the queen to lay in, besides as many more in which to store honey. He was not so well posted on wintering bees, but he thought that chaff packing on the summer stands, or a good cellar, was necessary. Bees are not dormant in winter. They should be very strong in numbers, and have plenty of well ripened honey if we wish them to winter successfully. He considers the reversible frame as working against nature, and thinks that extracted honey is the most profitable to produce. The life of a bee is 40 days in the working season, but in winter they live longer. A queen will live from two to five years. Chaff or some porous packing is necessary over the frames in winter. It is profitable if bees can fly every three weeks in winter. He said that the purest bees come from Italy. Climate has a great deal to do with bees. He said that "spring dwindling" is caused by cold, wet weather at that time of the year.

Mr. E. L. Briggs said that "spring dwindling" was often caused by too early breeding.

The convention then adjourned to meet at 7 p.m.

EVENING SESSION.

The convention was called to order by the President at 7 p.m. First on the programme was a song by the choir, entitled, "Whip-poor-will."

Mrs. Staley, of Adair, read an interesting essay on "Practical Bee-Keeping." She referred to the losses of the past winter, and said: "We must not be discouraged by this, but press forward again if we would make a success." She referred to bees as acknowledging female supremacy; in fact, her essay all the way through showed deep study and a thorough knowledge of apiculture.

Mrs. Kerman and Miss Tullis then sang a duet, entitled, "Murmuring Sea;" then came the election of officers, which resulted as follows: J. M. Hume, President; S. H. Moss, Vice-President; Mrs. Staley, Treasurer; and J. G. Norton, Secretary.

Rev. E. L. Briggs again addressed the convention, and dwelt somewhat on what the essayist said of despondency. Although the losses of the past winter were great, there is no business without loss; we still have our hives, frames and honey on hand. He stated how he had left his bees to a man to take care of, and all were lost; but by buying more colonies he had made a large profit the first year. He said we must keep the Italian bees, as they are the best, and are moth-proof; moths do not kill bees, but when a colony is reduced, moths come to fill the vacancy. He also gave a full description of the sex and offices of bees.

Mr. C. P. Dadant, then in answer to questions, said that he would not make passage-ways through the combs for bees in winter. Bees should be clustered in the front of the hive in winter. The entrance of a hive should be from one to two inches wide in winter; the back of a hive should be one inch higher than the front. Leaves make an excellent packing material for bees.

A vote of thanks was tendered the choir for the excellent music rendered.

The convention adjourned to meet at Macomb, Ills., sometime in the spring of 1886, at the call of the President and Secretary.

J. G. NORTON, *Sec.*

SELECTIONS FROM OUR LETTER BOX

Good Results.—W. H. H. Stewart, Galt, ☜ Ills., on Oct. 11, 1885, says:

I have obtained over 1,400 pounds of honey from my 32 colonies of bees, while some of my neighbors did not get an ounce; and this result comes from my reading the AMERICAN BEE JOURNAL.

Honey Market at Detroit.—W. Z. Hutchinson, Rogersville, ♂ Mich., Oct. 17, 1885, writes:

Upon seeing comb honey quoted at good figures in the Detroit papers, I took a sample of my honey there, but found the market overloaded and "more a-coming," so I would advise no one to send honey to Detroit at present. The scheme that had caused the high prices and the consequent glut in the market, I am informed is something like this: As the market was bare of honey, and none was coming in, several dealers clubbed together, paying $1 each, and hired the newspapers to quote honey "away up," and the consequence is that honey has been coming in there by the tons from every direction. I think that it would be a benefit to bee-keepers to known this, and not go to Detroit with the expectations of selling their honey at the "big price" at which it is being quoted. I wish to warn bee-keepers in this matter.

The Weather—Hybrid Bees.—J. H. Andre, Lockwood, ♀ N. Y., on Oct. 15, 1885, writes:

To-day it is cool and cloudy, but the bees are busy bringing in pollen from witch-hazel. Mention is made in the BEE JOURNAL regarding the differently marked bees in the same hives containing hybrids. I find that all hybrids in this vicinity have bred back, the Italian strain predominating, and some apiaries showing it that have never been Italianized; and I do not know of any pure Italians within several miles of here. It is very singular, and I think it will be of great benefit to bee-keepers next season, if not thereafter.

Old Bees for Winter.—James Heddon, Dowagiac, ♀ Mich., says:

I notice that some bee-keepers are fearing the results of the coming winter because their colonies ceased breeding early, and the hives contain no young bees. I think this fear is ill-founded. Bees do not grow old with time, but from exertion. Colonies of bees that have not bred late have not exerted themselves like those that have. The creation of young bees is always at the expense of the vitality of the older ones. My experience has taught me that young bees do not so readily enter the quiescent state, so desirable for safe wintering, as do old ones. In this quiescent condition but little food is taken, and scarcely any vitallity is lost. No matter if the youngest bee in the hive was hatched on Sept. 1, because none were hatched later, she has preserved her vitality, hence her age, and if she passes the winter in quiescence, she will last until her hive is populous. Bees preserve their vitality (age) wonderfully during autumn, when conditions are such as to discourage breeding. The converse of this proposition is equally true. Bee-keepers should have no fears because colonies go into winter quarters with old bees.

The Season—Dwarf Drones.—W. S. Douglass, Lexington, ⊙ Tex., on Oct. 16, 1885, writes:

Last year I started with 9 colonies of bees, and increased them to 22. The horse-mint crop was splendid. The bees filled their hives, and then commenced to build comb under the bottom-boards and around the entrances. Several bee-trees were found with combs on the outside that were filled with honey. I helped a man cut a tree that contained about 200 pounds of pure honey; but this was a hybrid colony. This year the horse-mint did not yield so well; although the bees have filled their hives from other flowers. This season I had 10 swarms, and I now have 32 colonies. I have 6 hybrid colonies which are far ahead of the German bees. They swarm more and gather more honey. I noticed them gathering honey from flowers that the black or German bees hardly noticed. They protect their combs better from the web-worm. This summer one of my very best colonies seemed to be "dwindling." I discovered dwarf drones in it, so I concluded that they had no queen. I opened the hive, and as I discovered the queen in a few minutes, I thought that they just reared a queen, and I shut up the hive. I waited several weeks, but nothing but dwarf drones seemed to be hatching out, and finally nothing was left except a few drones and the queen.

[A defective queen was, no doubt, the cause of the trouble.—ED.]

No Surplus Honey.—C. M. Roberts, Chillicothe, ♀ O., on Oct. 23, 1885, writes:

This season has been a complete failure so far as a surplus of honey is concerned. I have black colonies that have not yielded a single pound of surplus, and yet they are now absolutely starving. My Italians gathered some surplus from red clover, but not 10 pounds to the colony. All the black bees in this locality will die during the coming winter unless they are fed. White clover, upon which we depend for a surplus, froze entirely out last winter, and the crop from the seed has not blossomed yet.

Local Convention Directory.

1885.	*Time and place of Meeting.*
Oct. 28, 29.—	Central Illinois, at Jacksonville, Ills.
Nov. 5, 6.—	N. J. & Eastern, at Trenton, N. J. Wm. B. Treadwell, Sec., 16 Thomas St., N. Y.
Nov. 12.—	Central Michigan, at Lansing, Mich. E. N. Wood, Sec., N. Lansing, Mich.
Dec. 8—10.—	Michigan State, at Detroit, Mich. H. D. Cutting, Sec., Clinton, Mich.
Dec. 8—10.—	North American, at Detroit, Mich. W. Z. Hutchinson, Sec., Rogersville, Mich.
Dec. 8-10.—	Northwestern, at Detroit, Mich. W. Z. Hutchinson, Sec., Rogersville, Mich.
1886.	
Apr. 27.—	Des Moines County, at Burlington, Iowa. Jno. Nau, Sec., Middletown, Iowa.

☞ **In order to have this table complete, Secretaries are requested to forward full particulars of time and place of future meetings.—ED.**

The National Bee-Keepers' Union.

MEMBERS RECEIVED SINCE LAST ISSUE.

Baldwin, A. A.,	Hogue, R. M.,
Baldwin, L. W.,	Jones, J. H.,
Christie, Jno. H.,	Salisbury, S. W.,
Drew, Wm.,	Sumner, T. B.,
Gibson, F. A.,	Valentine, J. M.

The Guide and Hand-Book, is a book of ready reference and an encyclopædia of everything desirable to know. As a guide to the home-seeker, it is invaluable. Its contents are partially given on page 686, and will convince any one of its value. We do not think any of our readers can afford to do without it. As a book of ready reference we find it of great value in our library. We will send the Weekly BEE JOURNAL for a year and the Guide for $1.30.

WEEKLY EDITION
OF THE
AMERICAN
BEE JOURNAL
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THOMAS G. NEWMAN & SON,
PROPRIETORS,
923 & 925 WEST MADISON ST., CHICAGO, ILL.
Weekly, $2 a year; Monthly, 50 cents.

ALFRED H. NEWMAN,
BUSINESS MANAGER.

Special Notices.

SPECIAL NOTICE.—On January 1, 1886, the price of the Weekly BEE JOURNAL will be reduced to *One Dollar a Year*. This we have contemplated for some years, and only awaited the proper time to warrant us in issuing the Weekly BEE JOURNAL at the very low price of *one dollar* a year. That time has now come. We shall continue to improve the BEE JOURNAL, and it will maintain its proud position as the leading bee-paper of the World!

New subscribers will be supplied with the Weekly from now until the end of the year 1886, for **$1.25.**

Those who have already subscribed for any portion of *next year* will have the time beyond January 1st doubled. These changes in the mail-list type are already made.

For $1.25 we will send the Weekly BEE JOURNAL to *new subscribers* from now until the end of 1886—fourteen months. Now is the time to subscribe. The sooner it is done the more they will get for the money.

To Correspondents.—It would save us much trouble, if all would be particular to give their P. O. address and name, when writing to this office. We have several letters (some inclosing money) that have no name; many others having no Post-Office, County or State. Also, if you live near one post-office and get your mail at another, be sure to give the address we have on our list.

Any person not a subscriber, receiving a copy of this paper, will please consider it an invitation to become a subscriber to it.

☞ All who intend to be systematic in their work in the apiary, should get a copy of the Apiary Register and commence to use it. The prices are as follows:

For 50 colonies (120 pages)	$1 00
" 100 colonies (220 pages)	1 25
" 200 colonies (420 pages)	1 50

The larger ones can be used for a few colonies, give room for an increase of numbers, and still keep the record all together in one book, and are therefore most desirable.

Honey and Beeswax Market.

Office of the AMERICAN BEE JOURNAL,
Monday, 10 a. m., Oct. 26, 1885.

The following are the latest quotations for honey and beeswax received up to this hour:

CHICAGO.

HONEY.—It is in good demand, and for the best grades of white comb honey 15@16c. is obtained. Off-colored and dark find very slow sale. Extracted is steady at 5@8c. per lb.

BEESWAX.—24@25c. Offerings of honey and wax are light.

R. A. BURNETT, 161 South Water St.

BOSTON.

HONEY.—It is selling very well but prices are very low, and we are often obliged to shade our prices in order to make rates. We quote comb honey in 1-lb. sections at 14@16c., and 2-lb. sections at 12@14c. Extracted, 6@8c.

BEESWAX.—30 cts. per lb.

BLAKE & RIPLEY, 57 Chatham Street.

NEW YORK.

HONEY.—There is not much change in the market. The new crop is coming in quite freely, and is selling readily at the following prices: Fancy white clover, in 1-lb. sections, 14@15 cents; the same in 2-lb. sections, 12@13c.; fair to good, in 1 and 2 lb. sections, 10@11c.; fancy buckwheat, in 1-lb. sections, 11@12c.; the same in 2-lb. sections, 9@10c. Extracted, white clover, 6@7c.; buckwheat, 5@6c.

BEESWAX—Prime yellow, 25@28c.

MCCAUL & HILDRETH BROS., 34 Hudson St.

CINCINNATI.

HONEY.—There is no material change in the market. Demand is slow for manufacturing purposes, while the trade is fair in comb and extracted honey for table use. Arrivals are good. Choice comb honey brings 14@16c. per lb. in a jobbing way, and extracted honey, 4@8c., according to quality.

BEESWAX.—Home demand is fair, and it brings 20@22c. for choice yellow, on arrival.

C. F. MUTH, Freeman & Central Ave.

SAN FRANCISCO.

HONEY.—Arrivals are quite light, with a probability of so continuing through the balance of the season. There is some inquiry for best qualities, with a firm market for the same. Quotations are as follows: White to extra white comb, 9@11c.; dark to good, 5@8c. Extracted, white liquid, 5@5½ cts.; light amber colored, 4½@5c.; amber and candied, 4½c.

BEESWAX.—Quotable at 23@25c., wholesale.

O. B. SMITH & CO., 423 Front Street.

CLEVELAND.

HONEY.—The market since our last report has improved very much and there is a good opening for very choice white 1-lb. sections, for which 14@15c. is obtained. Our stock of new is very light at present but of the old we have a good supply which we sell at 10@13c. for white 1-lb. sections. Extracted honey is slow at 6@7c. for best white clover and basswood.

BEESWAX.—Very scarce at 20@22c.

A. C. KENDEL, 115 Ontario Street.

KANSAS CITY.

HONEY.—We now report a very firm market with some advance in prices, though the trade take hold very slowly as yet, and complain terribly when the advance is quoted to them. We are now holding for 16@17c. for fancy white honey in 1-lb. sections, 15@16c. for 2-lbs., and 12@13c. for Calif. Fancy 1-lb. sections, if marketed soon, will bring a good price. Extracted is a little firmer at about the same prices, viz: Miss., La. and Texas, 4@6c., and white clover and Calif., 7@8c.

BEESWAX.—Unchanged, 20@25c., according to quality.

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Honey as Food and Medicine.

☞ To create Honey Markets in every village, town and city, wide-awake honey producers should get the Leaflets "Why Eat Honey" (only 50 cents per 100), or else the pamphlets on "Honey as Food and Medicine," and scatter them plentifully, and the result will be a DEMAND for all of their crops at remunerative prices. "Honey as Food and Medicine" are sold at the following prices:

Single copy, 5 cts.; per doz., 40 cts.; per hundred, **$2.50.** Five hundred will be sent postpaid for **$10.00**; or **1,000** for **$15,00.** On orders of **100** or more, we will print, if desired, on the cover-page, "Presented by," etc. (giving the name and address of the bee-keeper who scatters them).

"Don't Stop"—that is what many write to us about their papers, when their time is nearly out. One subscriber says: "This has been a year of disaster, and it is not convenient for me to send you the money now to renew my subscription. It runs out with this month; *but don't stop sending it.* I will get the money to you within three months." Such letters are coming every day, and so for the present we have concluded not to stop any papers until requested to do so.

☞ Our rates for two or more copies of the book, "Bees and Honey," may be found on the Book List on the second page of this paper. Also wholesale rates on all books where they are purchased "to sell again."

☞ **Sample Copies** of the BEE JOURNAL will be sent FREE upon application. Any one intending to get up a club can have sample copies sent to the persons they desire to interview by sending the names to this office, or we will send them all to the agent.

Agents can sell the Guide and Hand-Book like "hot-cakes." Send us an order for five copies (with $2.50) and we will send you the Weekly BEE JOURNAL *free* for a year. This is a *rare* opportunity to get the Weekly BEE JOURNAL without cost!!

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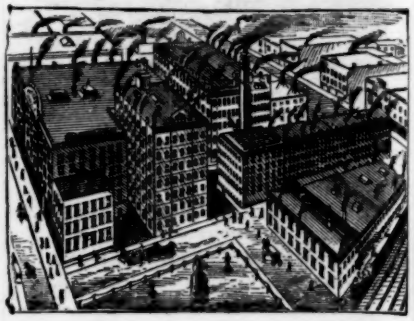

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